

SEQUENCE LISTING

<110> Leppert, Mark F.
Singh, Nanda A.

<120> Mutant Sodium Channel Nav1.7 and Methods
Related Thereto

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<170> FastSEQ for Windows Version 4.0

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<223> Description of Artificial Sequence:/note =
synthetic construct

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 Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
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 Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
 165 170 175
 Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
 180 185 190
 Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
 195 200 205
 Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
 210 215 220
 Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln
 225 230 235 240
 Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu
 245 250 255

Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	Leu	Lys
			260					265					270		
His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser
		275					280					285			
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr
	290					295					300				
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp
305					310					315					320
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn
				325					330					335	
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu
			340					345					350		
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln
		355					360					365			
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val
	370					375					380				
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val
385					390					395					400
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala
			405						410					415	
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys
			420					425					430		
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr	Thr
		435				440						445			
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser	Glu
	450					455					460				
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg	Arg
465				470						475					480
Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly	Asp
			485						490					495	
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg	Lys
			500					505					510		
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys	Arg
		515					520					525			
Leu	Ser	Thr	Pro	Asn	Gln	Ser	Pro	Leu	Ser	Ile	Arg	Gly	Ser	Leu	Phe
	530					535					540				
Ser	Ala	Arg	Arg	Ser	Ser	Arg	Thr	Ser	Leu	Phe	Ser	Phe	Lys	Gly	Arg
545				550						555					560
Gly	Arg	Asp	Ile	Gly	Ser	Glu	Thr	Glu	Phe	Ala	Asp	Asp	Glu	His	Ser
			565						570					575	
Ile	Phe	Gly	Asp	Asn	Glu	Ser	Arg	Arg	Gly	Ser	Leu	Phe	Val	Pro	His
		580						585					590		
Arg	Pro	Gln	Glu	Arg	Arg	Ser	Ser	Asn	Ile	Ser	Gln	Ala	Ser	Arg	Ser
		595				600						605			
Pro	Pro	Met	Leu	Pro	Val	Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp	Cys
	610					615					620				
Asn	Gly	Val	Val	Ser	Leu	Val	Asp	Gly	Arg	Ser	Ala	Leu	Met	Leu	Pro
625				630						635					640
Asn	Gly	Gln	Leu	Leu	Pro	Glu	Gly	Thr	Thr	Asn	Gln	Ile	His	Lys	Lys
			645						650					655	
Arg	Arg	Cys	Ser	Ser	Tyr	Leu	Leu	Ser	Glu	Asp	Met	Leu	Asn	Asp	Pro
			660					665					670		
Asn	Leu	Arg	Gln	Arg	Ala	Met	Ser	Arg	Ala	Ser	Ile	Leu	Thr	Asn	Thr
		675				680						685			
Val	Glu	Glu	Leu	Glu	Glu	Ser	Arg	Gln	Lys	Cys	Pro	Pro	Trp	Trp	Tyr
	690					695					700				
Arg	Phe	Ala	His	Lys	Phe	Leu	Ile	Trp	Asn	Cys	Ser	Pro	Tyr	Trp	Ile
705				710						715					720
Lys	Phe	Lys	Lys	Cys	Ile	Tyr	Phe	Ile	Val	Met	Asp	Pro	Phe	Val	Asp
			725						730					735	

Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met
 740 745 750
 Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly
 755 760 765
 Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu
 770 775 780
 Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe
 785 790 795 800
 Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp
 805 810 815
 Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
 820 825 830
 Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile
 835 840 845
 Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
 850 855 860
 Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser
 865 870 875 880
 Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg
 885 890 895
 Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val
 900 905 910
 Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala
 915 920 925
 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
 930 935 940
 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe
 945 950 955 960
 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
 965 970 975
 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
 980 985 990
 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
 995 1000 1005
 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
 1010 1015 1020
 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
 1025 1030 1035 1040
 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
 1045 1050 1055
 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
 1060 1065 1070
 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
 1075 1080 1085
 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser
 1090 1095 1100
 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp
 1105 1110 1115 1120
 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn
 1125 1130 1135
 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe
 1140 1145 1150
 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp
 1155 1160 1165
 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu
 1170 1175 1180
 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe
 1185 1190 1195 1200
 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu
 1205 1210 1215

Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu
 1220 1225 1230
 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys
 1235 1240 1245
 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
 1250 1255 1260
 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr
 1265 1270 1275 1280
 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
 1285 1290 1295
 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
 1300 1305 1310
 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
 1315 1320 1325
 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp
 1330 1335 1340
 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
 1345 1350 1355 1360
 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala
 1380 1385 1390
 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val
 1395 1400 1405
 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile
 1410 1415 1420
 Tyr Phe Val Val Phe Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
 1425 1430 1435 1440
 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu
 1445 1450 1455
 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn
 1460 1465 1470
 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg
 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
 1490 1495 1500
 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr
 1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550
 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565
 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
 1570 1575 1580
 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
 1585 1590 1595 1600
 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
 1605 1610 1615
 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
 Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
 1635 1640 1645
 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655 1660
 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
 1665 1670 1675 1680
 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
 1685 1690 1695

Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
 1700 1705 1710
 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
 1715 1720 1725
 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 1730 1735 1740
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 1745 1750 1755 1760
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 1825 1830 1835 1840
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 1845 1850 1855
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
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 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
 1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975

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 Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Asp Glu Glu Ala Pro Lys
 35 40 45
 Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly
 50 55 60
 Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
 65 70 75 80
 Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr
 85 90 95
 Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe
 100 105 110
 Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe
 115 120 125

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Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
  130          135          140
Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr
145          150          155          160
Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
          165          170          175
Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
          180          185          190
Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
          195          200          205
Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
          210          215          220
Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln
225          230          235          240
Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu
          245          250          255
Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn Leu Lys
          260          265          270
His Lys Cys Phe Arg Asn Ser Leu Glu Asn Asn Glu Thr Leu Glu Ser
          275          280          285
Ile Met Asn Thr Leu Glu Ser Glu Glu Asp Phe Arg Lys Tyr Phe Tyr
          290          295          300
Tyr Leu Glu Gly Ser Lys Asp Ala Leu Leu Cys Gly Phe Ser Thr Asp
305          310          315          320
Ser Gly Gln Cys Pro Glu Gly Tyr Thr Cys Val Lys Ile Gly Arg Asn
          325          330          335
Pro Asp Tyr Gly Tyr Thr Ser Phe Asp Thr Phe Ser Trp Ala Phe Leu
          340          345          350
Ala Leu Phe Arg Leu Met Thr Gln Asp Tyr Trp Glu Asn Leu Tyr Gln
          355          360          365
Gln Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met Ile Phe Phe Val Val
          370          375          380
Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn Leu Ile Leu Ala Val
385          390          395          400
Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala Asn Ile Glu Glu Ala
          405          410          415
Lys Gln Lys Glu Leu Glu Phe Gln Gln Met Leu Asp Arg Leu Lys Lys
          420          425          430
Glu Gln Glu Glu Ala Glu Ala Ile Ala Ala Ala Ala Glu Tyr Thr
          435          440          445
Ser Ile Arg Arg Ser Arg Ile Met Gly Leu Ser Glu Ser Ser Ser Glu
450          455          460
Thr Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu Arg Arg Asn Arg Arg
465          470          475          480
Lys Lys Lys Asn Gln Lys Lys Leu Ser Ser Gly Glu Glu Lys Gly Asp
          485          490          495
Ala Glu Lys Leu Ser Lys Ser Glu Ser Glu Asp Ser Ile Arg Arg Lys
          500          505          510
Ser Phe His Leu Gly Val Glu Gly His Arg Arg Ala His Glu Lys Arg
          515          520          525
Leu Ser Thr Pro Asn Gln Ser Pro Leu Ser Ile Arg Gly Ser Leu Phe
530          535          540
Ser Ala Arg Arg Ser Ser Arg Thr Ser Leu Phe Ser Phe Lys Gly Arg
545          550          555          560
Gly Arg Asp Ile Gly Ser Glu Thr Glu Phe Ala Asp Asp Glu His Ser
          565          570          575
Ile Phe Gly Asp Asn Glu Ser Arg Arg Gly Ser Leu Phe Val Pro His
          580          585          590
Arg Pro Gln Glu Arg Arg Ser Ser Asn Ile Ser Gln Ala Ser Arg Ser
          595          600          605

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Pro Pro Met Leu Pro Val Asn Gly Lys Met His Ser Ala Val Asp Cys
 610 615 620
 Asn Gly Val Val Ser Leu Val Asp Gly Arg Ser Ala Leu Met Leu Pro
 625 630 635 640
 Tyr Gly Gln Leu Leu Pro Glu Gly Thr Thr Asn Gln Ile His Lys Lys
 645 650 655
 Arg Arg Cys Ser Ser Tyr Leu Leu Ser Glu Asp Met Leu Asn Asp Pro
 660 665 670
 Asn Leu Arg Gln Arg Ala Met Ser Arg Ala Ser Ile Leu Thr Asn Thr
 675 680 685
 Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro Trp Trp Tyr
 690 695 700
 Arg Phe Ala His Lys Phe Leu Ile Trp Asn Cys Ser Pro Tyr Trp Ile
 705 710 715 720
 Lys Phe Lys Lys Cys Ile Tyr Phe Ile Val Met Asp Pro Phe Val Asp
 725 730 735
 Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met
 740 745 750
 Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly
 755 760 765
 Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu
 770 775 780
 Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe
 785 790 795 800
 Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp
 805 810 815
 Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
 820 825 830
 Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile
 835 840 845
 Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
 850 855 860
 Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser
 865 870 875 880
 Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg
 885 890 895
 Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val
 900 905 910
 Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala
 915 920 925
 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
 930 935 940
 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe
 945 950 955 960
 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
 965 970 975
 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
 980 985 990
 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
 995 1000 1005
 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
 1010 1015 1020
 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
 1025 1030 1035 1040
 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
 1045 1050 1055
 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
 1060 1065 1070
 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
 1075 1080 1085

Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser
 1090 1095 1100
 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp
 1105 1110 1115 1120
 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn
 1125 1130 1135
 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe
 1140 1145 1150
 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp
 1155 1160 1165
 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu
 1170 1175 1180
 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe
 1185 1190 1195 1200
 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu
 1205 1210 1215
 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu
 1220 1225 1230
 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys
 1235 1240 1245
 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
 1250 1255 1260
 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr
 1265 1270 1275 1280
 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
 1285 1290 1295
 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
 1300 1305 1310
 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
 1315 1320 1325
 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp
 1330 1335 1340
 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
 1345 1350 1355 1360
 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala
 1380 1385 1390
 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val
 1395 1400 1405
 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile
 1410 1415 1420
 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
 1425 1430 1435 1440
 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu
 1445 1450 1455
 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn
 1460 1465 1470
 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg
 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
 1490 1495 1500
 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr
 1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550
 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565

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Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
1570                      1575                      1580
Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
1585                      1590                      1595                      1600
Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
1605                      1610                      1615
Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
1620                      1625                      1630
Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
1635                      1640                      1645
Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
1650                      1655                      1660
Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
1665                      1670                      1675                      1680
Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
1685                      1690                      1695
Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
1700                      1705                      1710
Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
1715                      1720                      1725
Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
1730                      1735                      1740
Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
1745                      1750                      1755                      1760
Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
1765                      1770                      1775
Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
1780                      1785                      1790
Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
1795                      1800                      1805
Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
1810                      1815                      1820
Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
1825                      1830                      1835                      1840
Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
1845                      1850                      1855
Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
1860                      1865                      1870
Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
1875                      1880                      1885
Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
1890                      1895                      1900
Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
1905                      1910                      1915                      1920
Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
1925                      1930                      1935
Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
1940                      1945                      1950
Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
1955                      1960                      1965
Gly Lys Asp Ser Lys Glu Ser Lys Lys
1970                      1975

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 <213> Homo Sapien

<400> 5

Met	Ala	Met	Leu	Pro	Pro	Pro	Gly	Pro	Gln	Ser	Phe	Val	His	Phe	Thr
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Lys	Gln	Ser	Leu	Ala	Leu	Ile	Glu	Gln	Arg	Ile	Ala	Glu	Arg	Lys	Ser
			20					25					30		
Lys	Glu	Pro	Lys	Glu	Glu	Lys	Lys	Asp	Asp	Asp	Glu	Glu	Ala	Pro	Lys
		35					40					45			
Pro	Ser	Ser	Asp	Leu	Glu	Ala	Gly	Lys	Gln	Leu	Pro	Phe	Ile	Tyr	Gly
	50					55					60				
Asp	Ile	Pro	Pro	Gly	Met	Val	Ser	Glu	Pro	Leu	Glu	Asp	Leu	Asp	Pro
65					70					75					80
Tyr	Tyr	Ala	Asp	Lys	Lys	Thr	Phe	Ile	Val	Leu	Asn	Lys	Gly	Lys	Thr
			85						90					95	
Ile	Phe	Arg	Phe	Asn	Ala	Thr	Pro	Ala	Leu	Tyr	Met	Leu	Ser	Pro	Phe
			100					105					110		
Ser	Pro	Leu	Arg	Arg	Ile	Ser	Ile	Lys	Ile	Leu	Val	His	Ser	Leu	Phe
		115					120					125			
Ser	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Ile	Phe	Met	Thr
	130					135					140				
Met	Asn	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr	Thr	Phe	Thr
145					150					155					160
Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Val	Lys	Ile	Leu	Ala	Arg	Gly	Phe
				165					170					175	
Cys	Val	Gly	Glu	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn	Trp	Leu	Asp
			180					185					190		
Phe	Val	Val	Ile	Val	Phe	Ala	Tyr	Leu	Thr	Glu	Phe	Val	Asn	Leu	Gly
		195					200				205				
Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala	Leu	Lys	Thr
		210				215					220				
Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala	Leu	Ile	Gln
225					230					235					240
Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val	Phe	Cys	Leu
			245					250						255	
Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	Leu	Lys
		260						265					270		
His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser
		275					280					285			
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr
	290					295					300				
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp
305					310					315					320
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn
			325						330					335	
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu
		340						345					350		
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln
		355					360					365			
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val
	370					375					380				
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val
385					390					395					400
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala
			405						410					415	
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys
			420					425					430		
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr	Thr
		435					440					445			
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser	Glu
	450					455					460				
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg	Arg
465					470					475					480

Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly	Asp
			485						490					495	
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg	Lys
			500						505				510		
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys	Arg
		515					520					525			
Leu	Ser	Thr	Pro	Asn	Gln	Ser	Pro	Leu	Ser	Ile	Arg	Gly	Ser	Leu	Phe
		530					535					540			
Ser	Ala	Arg	Arg	Ser	Ser	Arg	Thr	Ser	Leu	Phe	Ser	Phe	Lys	Gly	Arg
545					550					555					560
Gly	Arg	Asp	Ile	Gly	Ser	Glu	Thr	Glu	Phe	Ala	Asp	Asp	Glu	His	Ser
				565					570					575	
Ile	Phe	Gly	Asp	Asn	Glu	Ser	Arg	Arg	Gly	Ser	Leu	Phe	Val	Pro	His
			580						585				590		
Arg	Pro	Gln	Glu	Arg	Arg	Ser	Ser	Asn	Ile	Ser	Gln	Ala	Ser	Arg	Ser
		595					600					605			
Pro	Pro	Met	Leu	Pro	Val	Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp	Cys
		610					615					620			
Asn	Gly	Val	Val	Ser	Leu	Val	Asp	Gly	Arg	Ser	Ala	Leu	Met	Leu	Pro
625					630					635					640
Asn	Gly	Gln	Leu	Leu	Pro	Glu	Gly	Thr	Thr	Asn	Gln	Ile	His	Arg	Lys
				645						650				655	
Arg	Arg	Cys	Ser	Ser	Tyr	Leu	Leu	Ser	Glu	Asp	Met	Leu	Asn	Asp	Pro
			660						665				670		
Asn	Leu	Arg	Gln	Arg	Ala	Met	Ser	Arg	Ala	Ser	Ile	Leu	Thr	Asn	Thr
			675					680					685		
Val	Glu	Glu	Leu	Glu	Glu	Ser	Arg	Gln	Lys	Cys	Pro	Pro	Trp	Trp	Tyr
			690				695					700			
Arg	Phe	Ala	His	Lys	Phe	Leu	Ile	Trp	Asn	Cys	Ser	Pro	Tyr	Trp	Ile
705					710					715					720
Lys	Phe	Lys	Lys	Cys	Ile	Tyr	Phe	Ile	Val	Met	Asp	Pro	Phe	Val	Asp
				725						730				735	
Leu	Ala	Ile	Thr	Ile	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Met
			740						745				750		
Glu	His	His	Pro	Met	Thr	Glu	Glu	Phe	Lys	Asn	Val	Leu	Ala	Ile	Gly
			755					760					765		
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Ala	Ala	Glu	Met	Val	Leu	Lys	Leu
			770				775					780			
Ile	Ala	Met	Asp	Pro	Tyr	Glu	Tyr	Phe	Gln	Val	Gly	Trp	Asn	Ile	Phe
785					790					795					800
Asp	Ser	Leu	Ile	Val	Thr	Leu	Ser	Leu	Val	Glu	Leu	Phe	Leu	Ala	Asp
				805						810				815	
Val	Glu	Gly	Leu	Ser	Val	Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val	Phe
			820					825					830		
Lys	Leu	Ala	Lys	Ser	Trp	Pro	Thr	Leu	Asn	Met	Leu	Ile	Lys	Ile	Ile
		835					840						845		
Gly	Asn	Ser	Val	Gly	Ala	Leu	Gly	Asn	Leu	Thr	Leu	Val	Leu	Ala	Ile
			850				855					860			
Ile	Val	Phe	Ile	Phe	Ala	Val	Val	Gly	Met	Gln	Leu	Phe	Gly	Lys	Ser
865					870					875					880
Tyr	Lys	Glu	Cys	Val	Cys	Lys	Ile	Asn	Asp	Asp	Cys	Thr	Leu	Pro	Arg
				885						890				895	
Trp	His	Met	Asn	Asp	Phe	Phe	His	Ser	Phe	Leu	Ile	Val	Phe	Arg	Val
			900						905				910		
Leu	Cys	Gly	Glu	Trp	Ile	Glu	Thr	Met	Trp	Asp	Cys	Met	Glu	Val	Ala
			915					920					925		
Gly	Gln	Ala	Met	Cys	Leu	Ile	Val	Tyr	Met	Met	Val	Met	Val	Ile	Gly
			930				935					940			
Asn	Leu	Val	Val	Leu	Asn	Leu	Phe	Leu	Ala	Leu	Leu	Leu	Ser	Ser	Phe
945					950					955					960

Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
 965 970 975
 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
 980 985 990
 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
 995 1000 1005
 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
 1010 1015 1020
 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
 1025 1030 1035 1040
 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
 1045 1050 1055
 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
 1060 1065 1070
 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
 1075 1080 1085
 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser
 1090 1095 1100
 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp
 1105 1110 1115 1120
 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn
 1125 1130 1135
 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe
 1140 1145 1150
 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp
 1155 1160 1165
 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu
 1170 1175 1180
 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe
 1185 1190 1195 1200
 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu
 1205 1210 1215
 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu
 1220 1225 1230
 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys
 1235 1240 1245
 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
 1250 1255 1260
 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr
 1265 1270 1275 1280
 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
 1285 1290 1295
 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
 1300 1305 1310
 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
 1315 1320 1325
 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp
 1330 1335 1340
 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
 1345 1350 1355 1360
 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala
 1380 1385 1390
 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val
 1395 1400 1405
 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile
 1410 1415 1420
 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
 1425 1430 1435 1440

Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu
 1445 1450 1455
 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn
 1460 1465 1470
 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg
 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
 1490 1495 1500
 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr
 1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550
 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565
 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
 1570 1575 1580
 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
 1585 1590 1595 1600
 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
 1605 1610 1615
 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
 Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
 1635 1640 1645
 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655 1660
 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
 1665 1670 1675 1680
 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
 1685 1690 1695
 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
 1700 1705 1710
 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
 1715 1720 1725
 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 1730 1735 1740
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 1745 1750 1755 1760
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 1825 1830 1835 1840
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 1845 1850 1855
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920

Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
 1940 1945 1950
 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
 1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975

<210> 6
 <211> 1977
 <212> PRT
 <213> Homo Sapien

<400> 6
 Met Ala Met Leu Pro Pro Gly Pro Gln Ser Phe Val His Phe Thr
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 Lys Gln Ser Leu Ala Leu Ile Glu Gln Arg Ile Ala Glu Arg Lys Ser
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 Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Asp Glu Glu Ala Pro Lys
 35 40 45
 Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly
 50 55 60
 Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
 65 70 75 80
 Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr
 85 90 95
 Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe
 100 105 110
 Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe
 115 120 125
 Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
 130 135 140
 Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr
 145 150 155 160
 Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
 165 170 175
 Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
 180 185 190
 Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
 195 200 205
 Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
 210 215 220
 Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln
 225 230 235 240
 Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu
 245 250 255
 Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn Leu Lys
 260 265 270
 His Lys Cys Phe Arg Asn Ser Leu Glu Asn Asn Glu Thr Leu Glu Ser
 275 280 285
 Ile Met Asn Thr Leu Glu Ser Glu Glu Asp Phe Arg Lys Tyr Phe Tyr
 290 295 300
 Tyr Leu Glu Gly Ser Lys Asp Ala Leu Leu Cys Gly Phe Ser Thr Asp
 305 310 315 320
 Ser Gly Gln Cys Pro Glu Gly Tyr Thr Cys Val Lys Ile Gly Arg Asn
 325 330 335
 Pro Asp Tyr Gly Tyr Thr Ser Phe Asp Thr Phe Ser Trp Ala Phe Leu
 340 345 350

Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln
		355					360					365			
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val
	370					375					380				
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val
	385				390					395					400
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala
				405					410					415	
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys
			420				425						430		
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr	Thr
			435				440					445			
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser	Glu
	450					455					460				
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg	Arg
	465				470					475					480
Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly	Asp
			485						490					495	
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg	Lys
			500					505					510		
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys	Arg
		515					520					525			
Leu	Ser	Thr	Pro	Asn	Gln	Ser	Pro	Leu	Ser	Ile	Arg	Gly	Ser	Leu	Phe
	530					535					540				
Ser	Ala	Arg	Arg	Ser	Ser	Arg	Thr	Ser	Leu	Phe	Ser	Phe	Lys	Gly	Arg
	545				550					555					560
Gly	Arg	Asp	Ile	Gly	Ser	Glu	Thr	Glu	Phe	Ala	Asp	Asp	Glu	His	Ser
				565					570					575	
Ile	Phe	Gly	Asp	Asn	Glu	Ser	Arg	Arg	Gly	Ser	Leu	Phe	Val	Pro	His
			580					585					590		
Arg	Pro	Gln	Glu	Arg	Arg	Ser	Ser	Asn	Ile	Ser	Gln	Ala	Ser	Arg	Ser
		595					600					605			
Pro	Pro	Met	Leu	Pro	Val	Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp	Cys
	610					615						620			
Asn	Gly	Val	Val	Ser	Leu	Val	Asp	Gly	Arg	Ser	Ala	Leu	Met	Leu	Pro
	625				630					635					640
Asn	Gly	Gln	Leu	Leu	Pro	Glu	Gly	Thr	Thr	Asn	Gln	Ile	His	Lys	Lys
			645					650						655	
Arg	Arg	Cys	Ser	Ser	Tyr	Leu	Leu	Ser	Glu	Asp	Met	Leu	Asn	Asp	Pro
			660					665					670		
Asn	Leu	Arg	Gln	Arg	Ala	Met	Ser	Arg	Ala	Ser	Ile	Leu	Thr	Asn	Thr
		675					680					685			
Val	Glu	Glu	Leu	Glu	Glu	Ser	Arg	Gln	Lys	Cys	Pro	Pro	Trp	Trp	Tyr
	690					695					700				
Arg	Phe	Ala	His	Lys	Phe	Leu	Ile	Trp	Asn	Cys	Ser	Pro	Tyr	Trp	Ile
	705				710					715					720
Lys	Phe	Lys	Lys	Cys	Ile	Tyr	Phe	Ile	Val	Met	Asp	Pro	Phe	Val	Asp
				725					730					735	
Leu	Ala	Val	Thr	Ile	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Met
			740					745					750		
Glu	His	His	Pro	Met	Thr	Glu	Glu	Phe	Lys	Asn	Val	Leu	Ala	Ile	Gly
		755					760					765			
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Ala	Ala	Glu	Met	Val	Leu	Lys	Leu
	770					775					780				
Ile	Ala	Met	Asp	Pro	Tyr	Glu	Tyr	Phe	Gln	Val	Gly	Trp	Asn	Ile	Phe
	785				790					795					800
Asp	Ser	Leu	Ile	Val	Thr	Leu	Ser	Leu	Val	Glu	Leu	Phe	Leu	Ala	Asp
				805					810					815	
Val	Glu	Gly	Leu	Ser	Val	Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val	Phe
			820					825					830		

Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile
 835 840 845
 Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
 850 855 860
 Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser
 865 870 875 880
 Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg
 885 890 895
 Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val
 900 905 910
 Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala
 915 920 925
 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
 930 935 940
 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe
 945 950 955 960
 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
 965 970 975
 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
 980 985 990
 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
 995 1000 1005
 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
 1010 1015 1020
 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
 1025 1030 1035 1040
 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
 1045 1050 1055
 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
 1060 1065 1070
 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
 1075 1080 1085
 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser
 1090 1095 1100
 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp
 1105 1110 1115 1120
 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn
 1125 1130 1135
 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe
 1140 1145 1150
 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp
 1155 1160 1165
 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu
 1170 1175 1180
 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe
 1185 1190 1195 1200
 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu
 1205 1210 1215
 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu
 1220 1225 1230
 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys
 1235 1240 1245
 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
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 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
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 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
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Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
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 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
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 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
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 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
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 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
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 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
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 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
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 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
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 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
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 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
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 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
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 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
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 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790

Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
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 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
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 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
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 1970 1975

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 35 40 45
 Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly
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 Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
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 Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr
 85 90 95
 Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe
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 Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe
 115 120 125
 Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
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 Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr
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 Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
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 Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
 180 185 190
 Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
 195 200 205
 Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
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Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val	Phe	Cys	Leu
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His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser
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Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu
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Arg	Phe	Ala	His	Lys	Phe	Leu	Ile	Trp	Asn	Cys	Ser	Pro	Tyr	Trp	Ile
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 1860 1865 1870
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 1875 1880 1885
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 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
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 1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975

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<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
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<213> Artificial Sequence

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<223> Description of Artificial Sequence:/note =
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<213> Artificial Sequence

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<213> Artificial Sequence

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<210> 28
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<210> 29
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<210> 31
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<400> 33
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<210> 34
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<210> 35
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<213> Artificial Sequence

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<210> 36

<211> 5

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: /note =
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<210> 37

<211> 5

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: /note =
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<210> 38

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<213> Homo Sapien

<400> 38

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 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
 930 935 940
 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe
 945 950 955 960
 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
 965 970 975
 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
 980 985 990
 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
 995 1000 1005
 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
 1010 1015 1020
 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
 1025 1030 1035 1040
 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
 1045 1050 1055
 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
 1060 1065 1070

Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
 1075 1080 1085
 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser
 1090 1095 1100
 Lys Val Arg Leu Asn Arg Ser Ser Ser Glu Cys Ser Thr Val Asp
 1105 1110 1115 1120
 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn
 1125 1130 1135
 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe
 1140 1145 1150
 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp
 1155 1160 1165
 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu
 1170 1175 1180
 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe
 1185 1190 1195 1200
 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu
 1205 1210 1215
 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu
 1220 1225 1230
 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys
 1235 1240 1245
 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
 1250 1255 1260
 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr
 1265 1270 1275 1280
 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
 1285 1290 1295
 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
 1300 1305 1310
 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
 1315 1320 1325
 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp
 1330 1335 1340
 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
 1345 1350 1355 1360
 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala
 1380 1385 1390
 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val
 1395 1400 1405
 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile
 1410 1415 1420
 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
 1425 1430 1435 1440
 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu
 1445 1450 1455
 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn
 1460 1465 1470
 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg
 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
 1490 1495 1500
 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr
 1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550

Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565
 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
 1570 1575 1580
 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
 1585 1590 1595 1600
 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
 1605 1610 1615
 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
 Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
 1635 1640 1645
 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655 1660
 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
 1665 1670 1675 1680
 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
 1685 1690 1695
 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
 1700 1705 1710
 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
 1715 1720 1725
 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 1730 1735 1740
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 1745 1750 1755 1760
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 1825 1830 1835 1840
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 1845 1850 1855
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
 1940 1945 1950
 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
 1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975